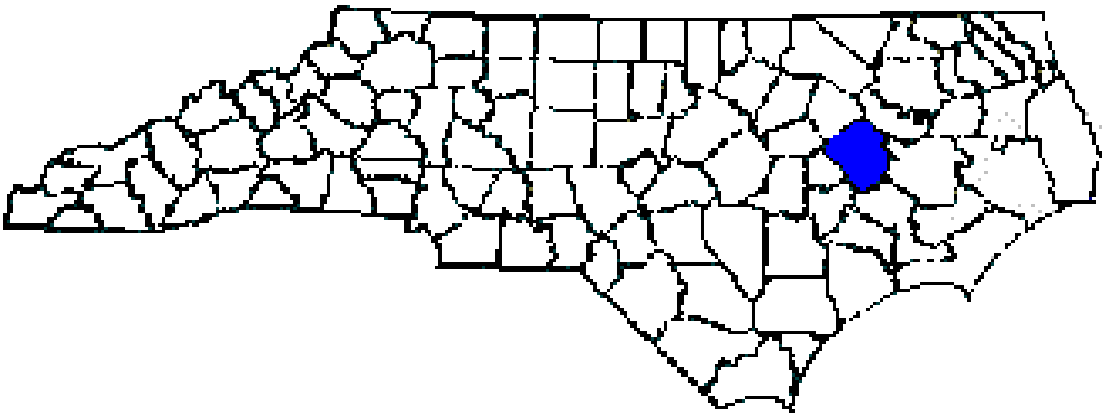
ANNUAL REPORT FOR 2015



Grimesland Bridge Road Wetland Mitigation Site
Pitt County
TIP No. B-3684
COE Action ID: SAW-2008-01011
DWR Project #: 20080356

Prepared By:
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North Carolina Department of Transportation
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SUMMARY

The Grimesland Bridge Road Wetland Mitigation Site is located in Pitt County. The site was planted in January and February 2012 and was designed as wetland mitigation for impacts associated with bridge project B-3684.

The mitigation encompasses approximately 2.86 acres total of riverine swamp forest restoration and 0.27 acre of wetland enhancement by removing the existing causeway fill and two bridges on the –L- line and removing the existing causeway fill on the –Y- line at Seine Beach Road. Restoration involved connecting the road back to wetland elevations of the existing adjacent wetlands and planting the area. The enhancement consisted of planting the area where Bridge No. 127 was removed. Unavoidable wetland impacts due to the replacement of Bridge No. 129 over the Tar River and Bridge No. 127 over the Tar River Overflow are 1.44 acres. Therefore, the surplus of 1.42 acres of restoration will be available for future projects. Also, 3,500 sq. ft. of buffer will be restored along the south bank of the Tar River, all of which will be used to partially offset the unavoidable buffer impacts. The mitigation effort involved re-vegetating the area that was restored and enhanced. The area that was restored and enhanced is being monitored with vegetation plots and photo points for survival of planted seedlings. No hydrologic monitoring is required for this project; however, vegetation monitoring is required for five years.

There were three vegetation monitoring plots established throughout the 3.13 acre site. After the fourth year of monitoring, the 2015 vegetation monitoring of the site revealed an average tree density of 463 trees per acre.

NCDOT proposes to continue vegetation monitoring at the Grimesland Bridge Road Wetland Mitigation Site in 2016.

1.0 INTRODUCTION

1.1 Project Description

The Grimesland Bridge Road Wetland Mitigation Site is located at Bridge No. 129 over the Tar River and Bridge No. 127 over the Tar River Overflow on Grimesland Bridge Road in Pitt County, NC. The site consists of approximately 2.86 acres of riverine swamp forest restoration, 3,500 square feet of buffer restoration and 0.27 acre of wetland enhancement (upon approval by the regulatory agencies) to offset wetland impacts associated with bridge project B-3684.

1.2 Purpose

In order for a mitigation site to be considered successful, the site must meet vegetation success criteria. This report details the vegetation monitoring in 2015 at the Grimesland Bridge Road Wetland Mitigation Site. Hydrologic monitoring was not required for the site.

1.3 Project History

September 2009	Herbicide Application on Japanese Knotweed
May 2010	Herbicide Application on Japanese Knotweed
July 2010	Herbicide Application on Japanese Knotweed
August 2010	Herbicide Application on Japanese Knotweed
April 2011	Herbicide Application on Japanese Knotweed
January 2012	Restoration Area Planted
February 2012	Enhancement Area Planted
October 2012	Vegetation Monitoring (Year 1)
July 2013	Vegetation Monitoring (Year 2)
July 2014	Vegetation Monitoring (Year 3)
July 2014	Herbicide Application on Japanese Knotweed
April 2015	Vegetation Monitoring (Year 4 - Enhancement Area)
August 2015	Vegetation Monitoring (Year 4)
August 2015	Herbicide Application on Japanese Knotweed

1.4 Debit Ledger

Site name	Site TIP	HUC	River Basin	Division	County	Mitigation Type	Notes	As Built Quantity	Available	Debit
Grimesland Bridge	B-3684	3020103	Tar-Pamlico	2	Pitt	Riverine		2.86	1.42	1.44
						Enhancement		0.27	0.27	0
						Buffer Restoration		3,500 ft^2	0	3,500 ft^2

Note: Debit ledger information up to date as of November 16, 2015.

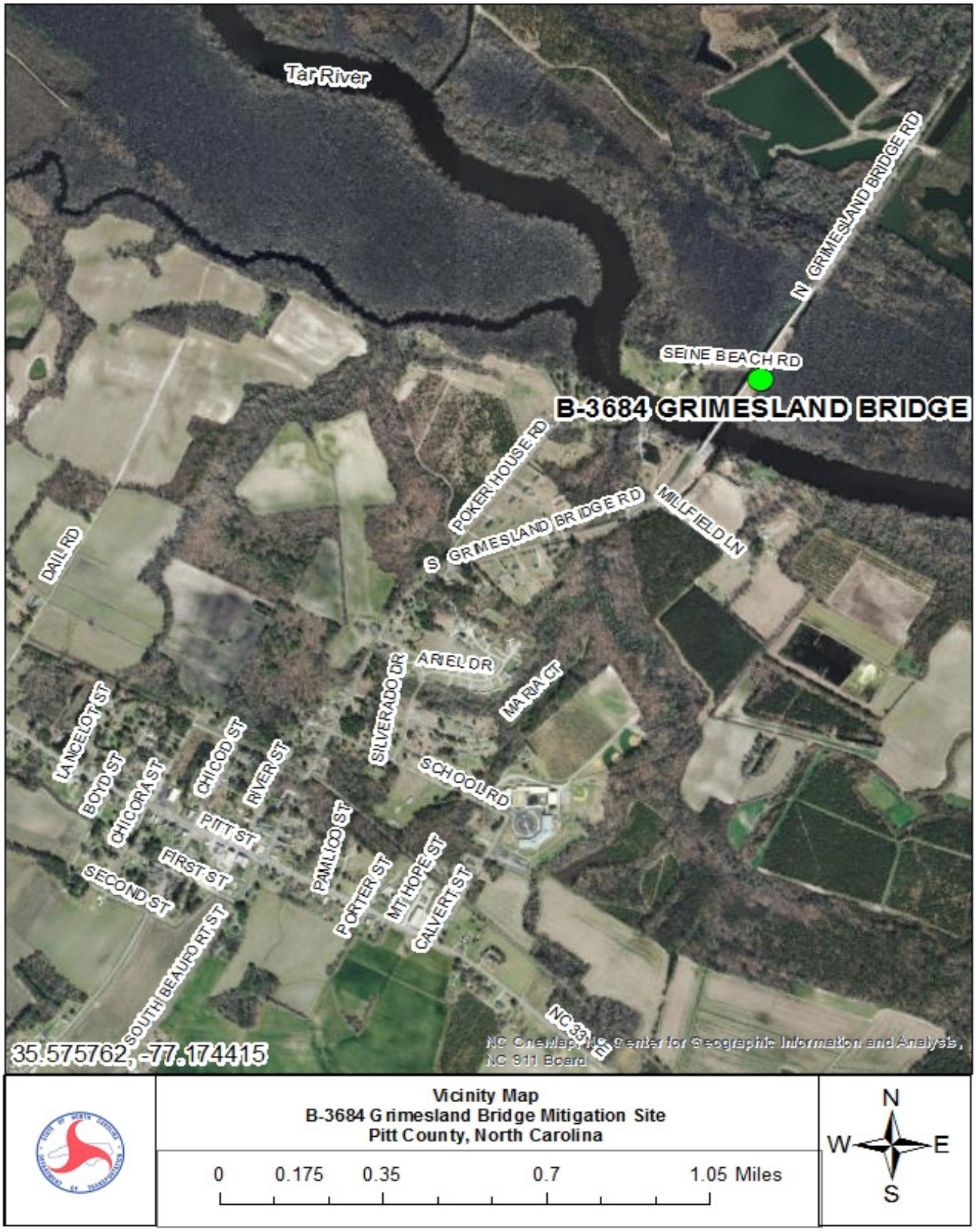

Figure 1. Vicinity Map

2.0 VEGETATION: GRIMESLAND BRIDGE ROAD WETLAND MITIGATION SITE (YEAR 4 MONITORING)

2.1 Success Criteria

Mitigation Plan States:

NCDOT shall monitor the mitigation site by visual observation and photo points for survival and aerial cover of vegetation. NCDOT shall monitor the site for a minimum of three years or until the site is deemed successful. Monitoring will be initiated upon completion of the site planting.

No specific hydrological monitoring is proposed for this mitigation site. The target elevation will be based on the adjacent wetland elevation and verified during construction. Constructing the site at the adjacent wetland elevation will ensure the hydrology and connectivity of the restored areas are similar to the hydrology in the reference areas.

Condition #6 of the DWQ Permit States:

For the wetland mitigation sites located along the –L- line and the –Y- line, the permittee shall plant 680 stems/acre. Vegetation success shall be measured by survivability over a 5-year monitoring period. Survivability will be based on 320 stems/acre after three years and 260 stems/acre after five years. A survey of vegetation during the growing season shall be conducted annually over the five year monitoring period and submitted to the NC Division of Water Quality. If the surviving vegetation densities are below the required thresholds after the five year monitoring period, the site may still be declared successful at the discretion of and with written approval from the NC Division of Water Quality.

2.2 Description of Species

The following tree species were planted in the Wetland and Enhancement Reforestation areas:

Nyssa aquatica, Water Tupelo

Taxodium distichum, Baldcypress

Fraxinus pennsylvanica, Green Ash

2.3 Results of Vegetation Monitoring

Plot #	Water Tupelo	Baldcypress	Green Ash	Total (Year 4)	Total (at planting)	Density (Trees/Acre)
1	3	16	7	26	41	431
2	9	15	15	39	60	442
3	5	13	23	41	54	516
Year 4 Average Density (Trees/Acre)						**463**
Year 3 Average Density						493
Year 2 Average Density						553
Year 1 Average Density						610

Restoration Area Site Notes: The mitigation area is re-attaining wetland jurisdictional status and the planted species are surviving. Other species noted onsite included *Scirpus* sp., wax myrtle, woolgrass, black willow, cattail, *Juncus* sp., cottonwood, baccharis, lespedeza, sycamore, red maple, pine, Japanese knotweed, and various grasses.

Japanese Knotweed was noted onsite prior to construction. DWR requested NCDOT complete herbicide applications on the Japanese Knotweed prior to the roadway fill being removed due to the plants invasive nature. See Section 1.3 Project History for herbicide application dates. A small patch of Japanese Knotweed was noted under bridge where Seine Beach Road was removed during the Year 4 monitoring evaluation. The Japanese Knotweed that was noted was sprayed with an herbicide application on August 12th, 2015.

Enhancement Area Site Notes: The 0.27 acre enhancement area was based on the footprint of the old bridge that was removed. The total acreage in this area from Right-of-Way to the edge of the new bridge is approximately 0.69 acres. The majority of the 0.27 acres (footprint of the old bridge) is predominantly open water. A total of 123 planted trees including baldcypress, water tupelo, and green ash (excluding a 15' swath from the edge of the new bridge) were counted and tagged within the entire 0.69 acre area. This gives an average density of 179 trees/acre, which is below the minimum requirement of 260 trees per acre by year 5. NCDOT proposes to supplementally plant this area in order to meet vegetative success. If plantings are successful, an on-site meeting will be held at the end of the monitoring period to determine the amount of enhancement credit available. See attached photos of the Wetland Enhancement Area from February 2012 after the bridge was removed and recent monitoring photos for comparison of how this area is being enhanced.

2.4 Conclusions

There were 3 vegetation monitoring plots established throughout the 3.13 acre site. The 2015 vegetation monitoring of the site revealed an average density of 463 trees per acre for the fourth year of monitoring.

3.0 OVERALL CONCLUSIONS AND RECOMMENDATIONS

The 2015 year represents the fourth year of monitoring activities that have occurred at the Grimesland Bridge Road Wetland Mitigation Site. The site must demonstrate vegetation success for a minimum of five years or until the site is deemed successful.

There were three vegetation monitoring plots established throughout the 3.13 acre site. The 2015 vegetation monitoring of the site revealed an average density of 463 trees per acre. If Japanese knotweed is noted onsite, it will continue to be sprayed throughout the monitoring period.

NCDOT plans to supplementally plant the enhancement area and will continue vegetation monitoring at the Grimesland Bridge Road Wetland Mitigation Site in 2016.

APPENDIX A

SITE PHOTOS and SITE MAPS

Grimesland Bridge Road

Photo 1 (Enhancement Area)

Photo 2 (Restoration Area)

Photo 3 (Restoration Area)

Photo 4 (Restoration Area)

Photo 5 (Restoration Area)

Photo 6 (Restoration Area)

August 2015

Grimesland Bridge Road

Overview Photo of Site (Enhancement Area- August 2015)

Overview Photo of Site (Enhancement Area) from 2/15/12

Grimesland Bridge Road

Wetland Enhancement flagged trees (April 2015)

Wetland Enhancement flagged trees (April 2015)

Wetland Enhancement Overview of flagged trees (April 2015)

PHOTO POINT AND VEGETATION PLOT LOCATIONS
B-3684 Grimesland Bridge Mitigation Site
Pitt County, North Carolina

0 500 1,000 2,000 3,000
Feet

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W E
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